

REMARKS

This is intended as a full and complete response to the Final Office Action dated July 2, 2003, having a shortened statutory period for response set to expire on October 2, 2003. Please reconsider the claims pending in the application for reasons discussed below.

Claims 9-33 are pending. Claims 9 and 16 are amended herewith. Claims 28-33 are cancelled herewith. Thus claims 9-27 are under examination. Support for these amendments can be found, for example, on page 16, lines 9-15 of the specification. No new matter is added by this amendment. Please consider the following remarks.

The present invention relates to methods of making polyolefin microporous breathable films. The inventors have found that the addition of an additive such as an elastomer or a plastomer improves the dart impact strength and tear strength of the films while contributing to a softer film feel against human skin. The claimed methods recite the combination of a polyolefin precursor/filler blend with an additive that is a plastomer, an elastomer, a styrenic block copolymer, or a combination thereof, where the additive has a melt flow index ranging from about 0.8 to about 40 g/10 minutes. The film has a WVTR in the range of about 1000 to about 10,000 g/m²/24hr.

Claims 9, 12, 16, 19, 22, 25, 28, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,472,328 to Sugimoto ("Sugimoto") in view of U.S. Patent No. 4,091,164 to Schwartz ("Schwartz") in view of U.S. Patent No. 6,072,005 to Kobylivker ("Kobylivker"). Claims 28 and 31 are cancelled, rendering the rejection with respect to these claims moot.

It is stated in the Office Action that Applicant's arguments filed on May 19, 2003 have been considered but are not persuasive because the Examiner has found that at least one of the hydrocarbon polymers used in Sugimoto has a melt flow index within the range Applicant has claimed. (See Office Action, page 5, paragraph 5.)

Sugimoto relates to methods of producing porous films by compounding a polyolefin resin with a filler and a liquid or waxy hydrocarbon polymer. The liquid or waxy hydrocarbon polymer imparts pliability to the film, and is distinct from the additive component of plastomer or elastomer of the present invention as the additive component featured in the claimed invention is a solid, having a melt flow index ranging from about 0.8 to about 40 g/10 minutes. As the Examiner notes, Tufprene™, the element disclosed in Sugimoto, is not a liquid or waxy

hydrocarbon, but rather is a rubbery polybutadiene. However, Sugimoto uses Tufprene™ in comparative examples to illustrate that films not using the liquid or waxy hydrocarbon polymer undergo breakage upon monoaxial stretching or irregular stretching and, even when they are safely stretched, result in films having low tear strength etc. In some cases, the films have extremely low pliability. (See Sugimoto Col. 23, lines 58-64.)

For example, comparisons of films including Tufprene™ as the hydrocarbon polymer component versus films having a liquid or waxy hydrocarbon polymer are depicted as comparative examples 9 and 10 in Table 3, comparative examples 22 and 23 in Table 8, comparative example 27 in Table 10, and comparative examples 33 and 34 in Table 13. For example, in Table 3, Table 8, and Table 13 the comparative examples of films made with Tufprene™ all have reduced permeability to moisture compared to corresponding films made with liquid or waxy hydrocarbon polymers. In fact, three of the four examples of films including Tufprene™ have a permeability to moisture of 50 g/m²/24hr or less. Thus, while Sugimoto does include examples of films that include Tufprene™, Sugimoto teaches away from the use of such a component because each disclosed example including Tufprene™ has inferior physical properties (e.g., moisture permeability) relative to films that instead include a liquid or waxy hydrocarbon polymer.

Schwarz relates to the modification of normally hydrophilic inorganic fillers to enhance their dispersibility in polymeric resins. It is asserted that Schwarz discloses a film with fillers added to create voids including a polyolefin between 10 to 60% polypropylene, and that it would have been obvious to one of skill in the art that the more polypropylene in the mix, the more likely the film will be able to withstand a 100g dart. (See Office Action, page 3, second and third full paragraphs.) While the Examiner points to Table 2 in support of this assertion, a polypropylene polymer is not depicted in Table 2, rather Table 2 depicts the use of polypropylene oxide, which is a polymer distinct from polypropylene. Thus Applicants disagree with the Examiner's assertion that the teachings of Schwarz would render obvious to one of skill in the art the idea that increasing amounts of polypropylene would improve the likelihood that the film would be able to withstand a 100g dart. Moreover, Applicants assert Table 1, Example V of Schwarz discloses a polypropylene film resin, wherein as the percent of filler increases (i.e., the percent of polypropylene film decreases) the percent of failure with the dart impact test decreases (i.e. film strength improves). Accordingly, Applicants assert that Schwarz cannot be

properly relied on for a teaching that increasing amounts of polypropylene would improve a film's likelihood of withstanding a 100g dart impact test.

Kobylyvker relates to breathable films having improved physical and barrier properties. The films disclosed in Kobylyvker include an impact modified polyolefin matrix and a particulate filler. While the WVTR for the polymer films disclosed in Kobylyvker is at least 300 g/m²/24hr, preferably 1200 g/m²/24h and most preferably at least about 2000g/m²/24hr, nowhere does Kobylyvker teach or suggest the use of an elastomer or plasticizer as recited in the pending claims as a component of the films.

To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. (M.P.E.P. § 2142 citing *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)). Based on the arguments above, Applicants assert that the references fail to either expressly or impliedly suggest the claimed invention of a method of making a breathable film including combining a polymer/filler mixture with an additive (e.g., a plastomer or elastomer) having a melt flow index from about 0.8 to about 40 g/10 minutes, providing a film having a WVTR in the range from about 1000 to about 10,000 g/m²/24hr.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. (See M.P.E.P. § 2143 citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).) While it is true that Sugimoto discloses the use of a compound (Tufprene™) having a melt flow index within the claimed range, nowhere do the cited references suggest the desirability of such a compound as recited in the claimed invention. Rather, Sugimoto uses Tufprene™ to exemplify comparatively poor mechanical properties. Accordingly, one of skill in the art reading Sugimoto would be motivated to use a liquid or waxy polymer hydrocarbon rather than an additive having a melt flow index as featured in the claimed invention. Moreover, neither of the other cited references teach or suggest the use of an additive having the recited melt flow index to produce a breathable film. Thus, Applicants assert that the combination of the cited references fail to render the pending claims obvious as the combination of references fail to teach the desirability of the claimed invention. Accordingly, Applicants request that the rejection be withdrawn.

Claims 10, 11, 17, 18, 23, 24, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto in view of Schwarz and Kobylivker and further in view of U.S. Patent No. 4,116,892 to Schwarz ("Schwarz '892"). Claims 29 and 30 are cancelled, rendering the rejection with respect to these claims moot. All of claims 10, 11, 17, 18, 23, and 24 are dependent from one of claims 9, 16, or 22 and thus incorporate each of the limitations of those claims. For at least the reasons discussed above, the combination of Sugimoto in view of Schwarz and Kobylivker fails to render these claims obvious.

Schwarz '892 relates to a novel process for stretching a film of synthetic thermoplastic orientable polymer and blends thereof. Schwarz does not cure the deficiency of the combination of Sugimoto, Schwarz and Kobylivker as Schwarz '892 fails to teach or suggest the use of an additive having a melt flow index from about 0.8 to about 40 g/10 minutes as featured in the pending claims. Moreover, Schwarz '892 is silent regarding the WVTR of the disclosed polymer films. Accordingly, the combination of Sugimoto, Schwarz, Kobylivker, and Schwarz '892 fail to teach or suggest the claimed invention, and Applicants request that the rejection be withdrawn.

Claims 14, 15, 20, 21, 26, 27, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto in view of Schwarz and Kobylivker and in further view of U.S. Patent No. 5,695,868 to McCormack ("McCormack"). Claims 32 and 33 are cancelled, rendering the rejection with respect to these claims moot. Claims 14, 15, 20, 21, 26, and 27 are dependent from one of claims 9, 16, or 22 and thus include each of the limitations of those claims. For at least the reasons discussed above, the combination of Sugimoto in view of Schwarz and Kobylivker fails to render these claims obvious.

McCormack relates to films bonded to a non-woven web that can be used, for example in personal absorbent articles and health care related items. McCormack does not teach or suggest the use of an additive having a melt flow index from about 0.8 to about 40 g/10 minutes as featured in the pending claims. Accordingly, McCormack does not cure the deficiency with the combination of Sugimoto, Schwarz, and Kobylivker. Thus, for at least the reasons discussed above, claims 14, 15, 20, 21, 26, 27 are not rendered obvious by the combination of Sugimoto, Schwarz, Kobylivker, and McCormack.

Applicants assert that the pending claims are novel and unobvious over the cited references and ask that the pending claims be allowed. Having addressed all issues set out in the Final Office Action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



Robb D. Edmonds
Registration No. 46,681
MOSER, PATTERSON & SHERIDAN, L.L.P.
3040 Post Oak Blvd. Suite 1500
Houston, TX 77056
Telephone: (713) 623-4844
Facsimile: (713) 623-4846
Agent for Applicant(s)

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